

MST-0421

MWA ASC PCB

Test: Preliminary RF Gain and Frequency Response

Serial number: 002

Tester: Julian Schneider

Date: 15 Dec 2010

Jig details

1. Use ASC control jig
 - MWA JIG-010

Test procedure

1. Loosely fit the PCB into the housing.
2. For each channel connect a multimeter on current range in place of R33.
3. Power up board
 - Check current is in range 400mA to 600mA and record for later test.*
 - Ch 1 current 480 mA*
 - Ch 2 current 515 mA*
 - Ch 3 current 512 mA*
 - Ch 4 current 532 mA*
 - Ch 5 current 486 mA*
 - Ch 6 current 506 mA*
 - Ch 7 current 530 mA*
 - Ch 8 current 515 mA*
4. Power down board.
5. Insert 0R link in place of R33 on channel under test
6. Connect VNA port 1 to input via 50Ω - 75Ω impedance matching pad and quick-F connector.
7. Connect VNA port 2 to output via quick-SMA connector and a 10dB pad.
8. Set VNA power level to -20dBm, start 10MHz stop 600MHz
9. Power up board.
 - Verify 1Hz blinking LED on test jig, press ZERO button if required*
10. Measure frequency response of channel (*relative to 230MHz*)
 - Verify lower 3dB point 80 MHz +/- 5 MHz*
 - Verify upper 3dB point 300 MHz +/- 15 MHz*
 - Verify passband is flat to +/- 1dB*
 - Verify gain in passband is in range 15 dB to 25 dB*
11. Increase attenuation of alternate DAT-31PPs either via buttons or I2C

- **Verify gain decreases 1dB**
- **Verify frequency response remains flat +/-1dB in pass band**

12. Repeat last step until gain reaches -10dB.

13. Remove OR link and go to next channel.

Gain calculations for reference:

Input	-10 dBm
After matching pad	-16 dBm
After 1st gain stage	-1.5 to 1.5 dBm (gain 14.5dB to 17.5dB, P1dB 16.5dBm)
After transformer	-2 to +1 dBm
After DAT-31PP #1	-3.5 to -0.5 dBm
After 2nd gain stage	8.5 to 14 dBm (gain 12dB to 13.5dB, P1dB 26.5dBm)
After DAT-31PP #2	6 to 12.5 dBm
After third gain stage	18 to 26 dBm (gain 12dB to 13.5dB, P1dB 26.5dBm)
After filter	15 to 23 dBm
After 10dB pad	5 to 13 dBm = 15 to 23 dB gain

Comments

Requires PSI test code to be programmed into PIC.

MWA ASC PCB**Test: Preliminary RF Gain and Frequency Response**

Serial number: 002
Tester: Julian Schneider
Date: 15 Dec 2010

Channel	dB @ 230Mhz	lower 1dB / MHz	lower 3dB / MHz	upper 1dB / MHz	upper 3dB / MHz	passband flat +/- 1dB	gain decreases 1dB	remains flat +/- 1dB
1	25.33	77.98	71.88	263.43	299.22	yes	yes	yes
2	25.75	78.96	72.66	270.31	296.67	yes	yes	yes
3	25.75	78.17	71.88	261.66	297.65	yes	yes	yes
4	25.65	79.15	72.86	260.87	295.88	yes	yes	yes
5	26.05	79.55	73.25	259.69	301.58	yes	yes	yes
6	25.43	78.56	72.27	268.15	295.68	yes	yes	yes
7	25.65	79.15	72.27	268.35	297.26	yes	yes	yes
8	25.55	78.37	72.47	271.30	298.04	yes	yes	yes

50Ohm source into 75Ohm
subtract 1.6 dB